

PATENT

Atty Docket No.: 10018559-2

App. Ser. No.: 10/698,725

Akram discloses a method of forming under bump metallurgy (UBM) pads for a flip chip (Abstract; Column 3, lines 40-50). It is respectfully submitted that Akram, however, fails to disclose each and every feature recited in independent Claim 13.

Akram fails to disclose "a wettable layer adhered to a portion of the interior sloped surface" and "a solder layer adhered to a first portion of the wettable layer" as recited in independent Claim 13. In rejecting Claim 13, the Official Action refers to Figure 4c of Akram and states:

As shown in Figure 4c, the device formed comprises a substrate 56 having a substantially [planar surface and an interior sloped surface. A wettable layer 72 is adhered to the interior sloped surface. A solder layer 82 is adhered to the wettable layer.

This assertion is unsupported by the disclosure of Akram. Specifically, Akram discloses that layer 72 is formed over layer 70, as shown in Figure 4e. As such, Akram fails to disclose that layer 72 is adhered to a portion of the interior sloped surface of the layer 56. In this regard, Akram fails to disclose that layer 72 is "a wettable layer adhered to a portion of the interior sloped surface" as recited in independent Claim 13. Thus, for at least the foregoing reasons, Akram fails to disclose each and every feature of Claim 13 and thus cannot anticipate this claim.

Because Claim 14 incorporates all the features of independent Claim 13, Akram also fails to teach or suggest the features claimed in Claim 14 for at least the reasons given above. Therefore, Akram does not anticipate the subject matter of Claims 13-14. Claims 13-14 are thus allowable over Akram, and withdrawal of the rejection is respectfully requested.

Claim Rejection under 35 U.S.C. §103

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

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To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, if the above-identified criteria are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

The Official Action sets forth a rejection of Claims 18 and 19 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the disclosure contained in Akram in view of the disclosure contained in U.S. Patent No. 6,168,973 to Hubbard ("Hubbard"). This rejection is respectfully traversed because Akram in view of Hubbard fail to teach or suggest the invention as set forth in independent Claim 13, upon which Claims 18 and 19 depend.

The features of independent Claim 13 are recited above. Claims 18 and 19 incorporate all the features of independent Claim 13. For at least the reasons set forth above, it is respectfully submitted that Akram fails to teach or suggest each and every feature of the claimed invention as set forth in Claim 13. In addition, the Official Action correctly notes that Akram fails to teach or suggest the solder compositions recited in Claims 18 and 19.

Hubbard fails to remedy the deficiencies of Akram. Hubbard discloses a semiconductor stacked device for use in an implantable medical apparatus. (Abstract) Hubbard fails, however, to teach or suggest all the features of independent Claim 13, and Claims 18 and 19 which depend from independent Claim 13. With regard to independent Claim 13, Hubbard fails to teach or suggest "a substrate having a substantially planar surface

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and an interior sloped surface," "a wettable layer adhered to a portion of the interior sloped surface" and "a solder layer adhered to a first portion of the wettable layer" as recited in independent Claim 13. Instead, Hubbard discloses solder balls 56 attached to a mounting substrate 54 (Column 9, lines 50-51). The solder balls 56 are not, however, adhered to a first portion of a wettable layer. In addition, Hubbard fails to teach or suggest "a wettable layer adhered to a portion of the interior sloped surface." Nowhere does Hubbard teach or suggest an interior sloped surface. The mounting substrate 54 lacks an interior sloped surface, as shown in Figure 4 of Hubbard. For at least these reasons, Hubbard fails to teach or suggest all the features of independent Claim 13, and thus fails to remedy the deficiencies of Akram.

Akram and Hubbard thus fail to teach or suggest all the features of allowable independent Claim 13, upon which Claims 18 and 19 depend. For at least these reasons, and at least by virtue of their dependencies on allowable independent Claim 13, Akram in view of Hubbard fail to teach or suggest all the features of Claims 18 and 19. Claims 18 and 19 are thus allowable over Akram in view of Hubbard. The Examiner is, therefore, respectfully requested to withdraw the rejections of Claims 18 and 19 and to allow these claims.

Newly Added Claims

Claims 29-34 have been added. Claims 29 and 30 each depend from allowable Claim 13 and are also allowable at least by virtue of their dependency. Claims 31 and 32 each depend from allowable Claim 15 and are allowable at least by virtue of their dependency. Claims 33 and 34 each depend from allowable Claim 20 and are allowable at least by virtue of their dependency. Claims 29, 31 and 33 each recite "wherein the wettable layer is adhered to a section of the substrate, further wherein the wettable layer extends from a first portion of the substantially planar surface to the portion of the interior sloped surface,"

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which is not taught or suggested by the prior art. Furthermore, the prior art fails to teach or suggest "wherein the length of the wettable layer is shorter than a length of the interior sloped surface" as recited in each of Claims 30, 32 and 34. Therefore, for at least the foregoing reasons, the Examiner is respectfully requested to allow Claims 29-34.

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below. Please grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

Hubert Allen VANDER PLAS

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By

Timothy B. Kang
Registration No. 46,423MANNAVA & KANG, P.C.
8221 Old Courthouse Road
Suite 104
Vienna, VA 22182
(703) 652-3817
(703) 880-5270 (fax)